Measurement of Polarised Parton Distributions at HERMES

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Since 1995 the HERMES collaboration has measured inclusive and semi-inclusive double-spin asymmetries on polarized ^{3}He, hydrogen and deuterium targets in the kinematic range $0.023 < x < 0.6$ and $1\ \mathrm{GeV}^2 < Q^2 < 10\ \mathrm{GeV}^2$.

With the installation of a Ring Imaging Čerenkov detector in 1998, the asymmetries of charged pions and kaons could be determined for the first time. Based on the large set of measured asymmetries, the polarized quark and anti-quark distributions are extracted in LO pQCD as a function of x for all flavours separately. This includes a determination of the difference between the polarizations of the u- and d- sea quarks and the first direct measurement of the strange quark polarization.